My First Medical Writing

Editorial

In this release of My First Medical Writing, I have the pleasure to share with you a great article written by aspiring medical writer Shirene Melissa Singh. With over 5 years of experience as a university educator and researcher, she is passionate about writing about infectious diseases, immunological concepts, global health perspectives, and applied research. In this article, Shirene shares not only her knowledge but also her views on the current COVID-19 pandemic, in a very thorough and engaging manner that leaves the reader with a lot of food for thought. It has been a pleasure working with Shirene on her first article in *Medical Writing*.

Evguenia Alechine

Quarantine and isolation: Double-edged sword or imperative?

SECTION EDITOR

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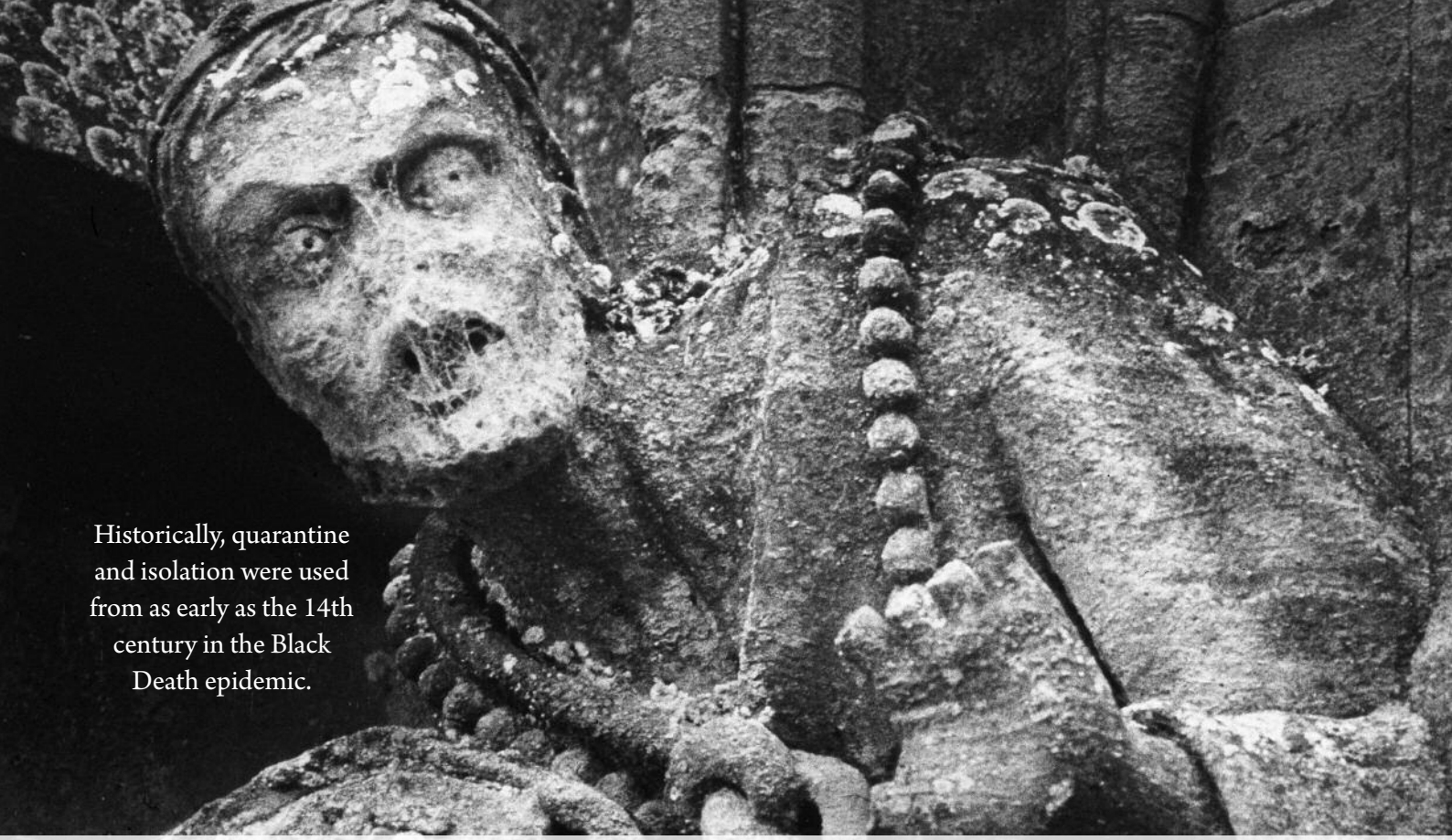
Quarantine and isolation practices are vital components of public health interventions aimed at minimising virus spread during the COVID-19 pandemic. As severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) took its toll globally, stringent measures were implemented by several affected countries in order to restrict population movement. In a coordinated response, many countries focused on minimising the impact of the pandemic by reducing global levels of morbidity and mortality. Through a lowering of the degree of population mixing in the delay and mitigation phases of the pandemic, peak numbers of infected individuals were projected to be reduced at a given period. This concept, also known as "flattening the curve", is designed to prevent health care systems from becoming overwhelmed. Quarantine and isolation practices, while undisputedly important are not without challenges that relate to compliance and sustainability.

Historically, quarantine and isolation were used from as early as the 14th century in the Black Death epidemic. Later, during the 18th century these measures were incorporated for disease control against a cholera outbreak. Quarantine, considered as paramount for the successful control of contagious diseases, was frequently implemented with other public health measures including isolation.[1] In modern public health terms, quarantine is used to describe the separation of individuals through movement restrictions over the incubation period after potential exposure to a contagious disease.[2] This course of action is deemed necessary to minimise the possible risk of spreading that disease to susceptible members of a population. Isolation refers to the separation of infected individuals through movement restrictions specifically for those confirmed as having a contagious disease. Contact tracing is done concurrently with quarantine and isolation to identify individuals that have been potentially exposed to a contagious disease. These public health principles have successfully stood the test of time. The intuitive question is how pertinent are such principles to the COVID-19 pandemic and why?

To address this question it is necessary to understand key concepts. Unlike the four major human coronavirus types (229E, NL63, OC43, AND HKU1), which are sometimes associated with the "common cold," SARS-CoV-2 is a novel coronavirus.[3] This means that prior to the initial outbreak of COVID-19, immunity did not exist in the global population. The situation was further compounded by a lack of existence of approved, internationally-licensed vaccines, and efficacious antiviral drugs.[4] Additionally, diagnostic testing was initially restricted to molecular tests. Due to the unavailability of reliable serological tests at the time, protective immunity could not be measured. Concerns later developed regarding virus transmission in pre-symptomatic and asymptomatic individuals. Since respiratory droplet transmission was not restricted to clinically infected individuals only, virus containment posed a challenge regarding COVID-19.[5] The basic reproduction number (R0) of SARS-CoV-2 represents the average number of new infections produced by an infected individual in a population with no pre-existing immunity. Therefore, in a susceptible population herd immunity is not immediately possible since this requires the development of protective immunity in a certain proportion of the population over time. Several estimates of R0 have been reported for SARS-CoV-2 based on current data.[6] However, a preliminary estimate of 1.4 to 2.5 was provided by the World-Health Organization in January 2020, based on available data at that time.[7] This estimate provides an indication of the severity of spread of COVID-19. At the onset, since R0 was greater than 1, the number of infected individuals in a susceptible population was expected to increase. In this regard, public health interventions such as quarantine, isolation, social distancing, use of personal protective equipment, and cough and hand hygiene became necessary to reduce exposure risks.

Concerns have been expressed over the feasibility of prolonged, widespread implementation of quarantine and isolation measures. The imminent threat of a global recession linked to factors such as loss of income, unemployment, trade, manufacturing, and international travel disruptions must be considered.[8] Predicting the medium to long-term macroeconomic impact of the COVID-19 pandemic on developed and developing countries remains a challenge. Equally challenging is predicting the course of recovery of productivity and economic growth. From a microeconomic standpoint, extensive restrictive measures can be problematic for individuals earning low wages and who are not entitled to paid sick leave or unemployment benefits. Further concerns have been expressed over the disproportionate increase in women's unemployment rates compared to men's in the United Kingdom and the United States of America.[9]

The success of China's response strategy to COVID-19 is largely attributed to population compliance with stringent restrictive measures. Many Western countries have opted for a similar



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strategy involving extensive lockdowns with the exception of Sweden that supported voluntary measures.[10] Nonetheless, prolonged implementation of these measures may prove difficult due to perceived infringements on the constitutional rights of individuals. The psychological impact of prolonged quarantine and isolation must be carefully considered especially for societal groups such as the elderly, students, and victims of domestic abuse. In these instances, effective support systems for minimising anxiety and depression and close monitoring of susceptible individuals become imperative.

As the pandemic runs its course we would, inevitably, learn several lessons along the way. Striking the right balance between protecting the population's health and promoting economic growth is no easy task to endure. Furthermore, there is an opportunity to reflect on moral dimensions of the pandemic. One question that we need to ask ourselves is, "Does the right to freedom of movement by individuals outweigh society's obligation to protect the elderly?" Perhaps there is no "one size fits all" solution to this issue. Until then, contemplation of the old adage "prevention is better than cure," may be in order. A collaborative, interdisciplinary "One World, One Health" approach promotes closer monitoring of zoonotic viruses and therefore better pandemic preparedness.

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